

DMA Toolkit

Section IV

Grade Level Resources

DMA 4th grade:

- Mathematical Terms and Vocabulary
- Possible Targeted Content and Skills
- Practice Assessments and Prompts
- Sample Lesson Plans

Fourth Grade Mathematics Terms and Vocabulary

A

add
addend
algebra
angle
area

B

bar graph

C

calendar
Celsius
cent
centimeter
change (money)
chart
circle
circle graph (pie graph)
column
combination
compare
congruent
cup

D

data
decimal
degree (Fahrenheit)
diagram
difference
digit
digital
dime
divide
dividend
divisor
dollar
double

E

equal
equal sign
equation
estimate
even number

F

factor
Fahrenheit
foot
fraction

G

gallon
geometric
geometry
graph
greater than

H

half dollar
half hour
hour
hour hand
hundred

I

inch

K

kilometer

L

less than
length
line
line graph
liter

M

meter
measure
metric
mile
millions
minute
minute hand
more than
multiply

N

nickel
number line
number sentence

O

odd number
operation (computations)
order
ounce

P

parallel
pattern
penny
per
perimeter
pictograph

pint
place value
polygon
pound
product

Q

quadrilateral
quart
quarter
quotient

R

rectangle
regroup (borrow, carry)
right angle
rounding
row
ruler

S

sequence
side
solve
square
subtract
sum
symbol
symmetry

T

table
tally mark
temperature
thermometer
thousand
time
total
triangle
triple
twice

U

unit

W

whole number

Y

yard

Possible Targeted Content and Skills

With references to Achievement Standards

For midyear 4th grade assessment, prompts will be restricted as indicated in italics.

♦ Basic Arithmetic, Estimation and Accurate Computations

1. Understand numbers and counting. (*including money*) 297.01.a
2. Know whole number place value. 297.01.b
3. Name and write large numbers. (*less than one million*) 297.01.b
4. Add/subtract whole numbers. (*values less than 100,000*) 297.02.a
5. Multiply whole numbers. (*whole numbers by single digits*) 297.02.a
6. Know the basic multiplication facts. (*up to 10 times 10*) 297.02.b
7. Estimate and/or use exact numbers, as appropriate and necessary, in product calculation 297.03.a
8. Divide whole numbers. (*basic concept of division by integers, not necessarily the division algorithm*) 297.02.a
9. Know the basic division facts. (*10 times table*) 297.02.a
10. Compare and order fractions. (*compare halves, thirds, fourths and eighths*) 297.01.a
11. Compare and order decimal numbers. (*with money through hundredths*) 297.01.a
12. Relate decimals to money. (*through hundredths*) 297.01.e
13. Add/subtract money. (*through hundredths*) 297.02.d
14. Count and show amounts of money. 297.01.a-c
15. Multiply using money. (*using single digits*)
16. Divide using money. (*basic concept without algorithm*)
17. Demonstrate making change.

♦ Mathematical Reasoning and Problem Solving

1. Select strategies appropriate for solving a problem. 298.01.a
2. Select and use appropriate operation. 298.01.b
3. Make predictions and decisions based on observations. 298.01.c
4. Use a variety of methods such as words, numbers, symbols, charts, graphs, tables, diagrams, and models to explain mathematical reasoning. 298.02.a
5. Select the appropriate means to communicate mathematical information. 298.04.a
6. Use appropriate notations and terms. 298.04.b

♦ Concepts and Principals of Measurement

1. Estimate and measure lengths. 299.01.a
2. Measure and work with temperature. (*Fahrenheit only*) 299.01.a
3. Apply estimation and measurement of weight/mass, length and capacity to real-world and content problems using actual measuring devices and express the results in both US customary and metric units. 299.01.a
4. Tell time using both digital and analog clocks to the nearest minute. 299.01.d
5. Identify relationships among seconds, minutes and hours to solve real-world problems. 299.01.e
6. Use a calendar.
7. Know AM and PM. 299.02.f
8. Determine elapsed time. 299.01.e

♦ Concepts and Language of Algebra

1. Use symbols (boxes or letters) to represent numbers. 300.01.b
2. Use symbols (<, >, =) to express relationships. 300.01.c
3. Compare relative values of whole numbers. 300.01.c (297.01.a)

♦ Concepts and Principals of Geometry

1. Describe, model, draw and classify shapes (*circle, square, rectangle, triangle, quadrilateral*). 301.01.a
2. Extend and create geometric patterns. 301.01.a(303.01.a)

♦ Data Analysis, Probability and Statistics.

1. Collect, order, and display data in tables, charts and graphs; e.g., bar graphs, tally chards and pictographs in order to answer a question or test a hypothesis. 302.02.a
2. State and justify conclusions from information found in tables, graphs and charts. 302.01.a

♦ Functions and Mathematical Models

1. Extend patterns and identify a rule that generates the pattern. 303.01.a
2. Discover, describe, and generalize patterns by using manipulatives, numbers, and graphic representations. 303.01.b
3. Compare or contrast. 297.01.a
4. Classify and Sort. 302.02.a
5. Solve problems by finding a pattern. 303.01.b
6. Recognize and generate patterns. 303.01.a
- Explain your reasoning. 298.02.a
7. Evaluate evidence and draw conclusions. 298.04.a

2003-04 Idaho Fourth-Grade Direct Math Assessment

Name_____

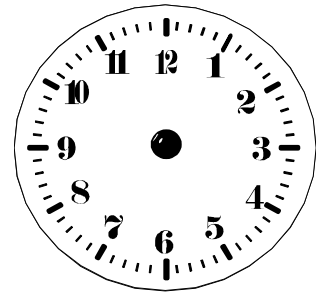
**Your teacher will read the entire test to you before you begin.
Do not use a calculator on this assessment.**

1. Maria and her family went camping and saw many birds. They saw 102 geese, 34 crows, 45 ducks, 16 robins and 23 bluebirds.
 - a. How many total birds did they see? *Show or explain how you found your answer.*
 - b. There are five people in Maria's family. They have 20 slices of bread altogether. How many slices of bread will each person have to feed the birds? *Show or explain how you found your answer.*
 - c. Last year they saw twice as many crows as this year. How many crows did they see last year? *Show or explain how you found your answer.*
 - d. How many more geese did they see than ducks? *Show or explain how you found your answer.*

- | Teacher | Favorite Fruit | Teacher | Favorite Fruit |
|-----------------------|----------------|----------------------|----------------|
| Mrs. Davis | Apples | Mrs. Baker | Apples |
| Mr. White | Grapes | Ms. Cole | Oranges |
| Mrs. Smith | Apples | Mr. Lopez | Pears |
| Ms. Jones | Oranges | Mrs. Green | Grapes |
| Miss Lowe | Bananas | Ms. Black | Bananas |
| Mrs. Miller | Grapes | Mr. Garcia | Oranges |
| Mr. Hill | Bananas | Mrs. Moss | Grapes |
| Mr. Jay | Grapes | Mr. Johns | Grapes |
| Mr. Cook | Bananas | Miss Jewel | Apples |

- [illegible]

3. White Pine School starts at 8:30 AM.
Morning recess begins at 10:00 AM.
Lunch begins at 11:50 AM and lasts 40 minutes.
Afternoon recess begins at 1:45 PM.
School is dismissed at 3:00 PM.



- a. How long is it from the start of the school day to the beginning of morning recess?
Show or explain how you found your answer.
 - b. What time does class begin after lunch? *Show or explain how you found your answer.*
 - c. Clark plays soccer for an hour after school. It takes him 25 minutes to walk home. What time will he get home if he leaves school right after playing soccer? *Show or explain how you found your answer.*
-

4. Jill's dad decided to make a garden with 4 sides. He made the garden 12 feet long and 10 feet wide.
- a. Draw a picture of the garden's shape. Label the length of each of the 4 sides on your picture.
 - b. If Jill's dad wanted to put a fence around the garden, how many feet of fence would he need? *Show or explain how you found your answer.*

5. Bob went shopping and bought these items:

Paper	\$2.75
Glue	\$1.25
Crayons	\$1.50
Pencils	?

- a. How much did Bob spend on the first three items? *Show or explain how you found your answer.*
- b. Bob spent a total of \$6.85 for the **four** items. Figure out the price of the pencils. Write a **number sentence** that shows how to solve the problem.
- c. Bob paid for his supplies with a \$10.00 bill. How much change did he get back? *Show or explain how you found your answer.*

2002-03 Idaho Fourth-Grade Direct Math Assessment

Name_____

**Your teacher will read the entire test to you before you begin.
Do not use a calculator on this assessment.**

- ① The local zoo counted their animals and found they had 4 tigers, 27 deer, 105 birds, 31 goats, 5 bears and 18 monkeys.

a. How many animals does the zoo have altogether? *Show or explain how you found your answer.*

c. How many more birds than deer does the zoo have right now? *Show or explain how you found your answer.*

b. The zoo wants to triple the number of goats. How many goats will they have after they triple the number? *Show or explain how you found your answer.*

d. The zoo needs to divide the monkeys into two cages. How many monkeys will they put in each cage? *Show or explain how you found your answer.*

Read problems 2, 3, 4, and 5 on this and the next two pages. Select three problems to answer. Answer ALL of the parts of the three problems you select to answer. Cross out the one problem that you do not choose to answer.

② Jane and Sam have messy rooms. They cleaned their rooms on December 31. Then they set up a cleaning schedule for January. Jane will clean her room every 3rd day. Sam will clean his room every 5th day.

- a. On which dates in January did **Jane** clean her room? *Show or explain how you found your answer.*

January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

- b. On which dates in January did **Sam** clean his room? *Show or explain how you found your answer.*

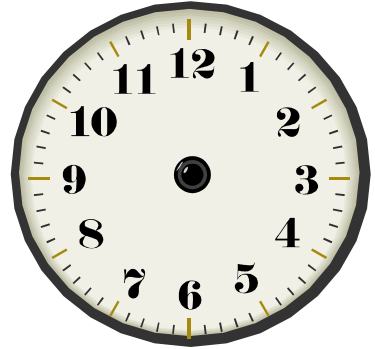
- c. Who cleaned their room the most days? *Show or explain how you found your answer.*

- d. On which dates in January did they clean their rooms on the **same day**? *Show or explain how you find your answer.*

- 3 Anna does chores each day after school. She feeds the animals for 20 minutes, collects eggs for 5 minutes, and cleans out the barn for 15 minutes.

a. How much time will Anna spend doing her chores? *Show or explain how you found your answer.*

b. If Anna came home from school and started her chores at 3:25, what time would she be finished with her chores? *Show or explain how you found your answer.*



c. On Saturday Anna has the same chores to do. If Anna wants to finish her chores by 1:30, what time should she start doing her chores? *Show or explain how you found your answer.*

4

a. **Draw** and **name** five different geometric shapes.

b. Which two shapes are the most **alike** and why?

c. Which two shapes are the most **different** and why?

- 5

Boy's Name	Color	Boy's Name	Color
James.....	blue	Josh.....	yellow
Chris.....	blue	Casey.....	red
Steve.....	yellow	Bob.....	green
Bill.....	blue	Tom.....	green
Mike.....	red	Vale.....	blue
Shawn.....	yellow	Ryan.....	yellow
Matt.....	blue	Jack.....	green

- Use tally marks to show the color choices the boys made.
- Use Jon's information to make a graph. Show the number of boys who chose each color.

[illegible]

2001-02 Fourth-Grade Direct Math Assessment

Name _____

**Your teacher will read the entire test to you before you begin.
Do not use a calculator on this assessment.**

- ① Every summer Jane's family takes a trip to Yellowstone National Park. Their favorite thing to do is to count the animals they see in the park. This year they saw 1,214 buffalo, 66 elk, 365 antelope, 4 moose and 6 bears.
- | | |
|--|---|
| a. How many animals did they see all together? <i>Show how you find your answer.</i> | b. How many more buffalo did Jane see than antelope? <i>Show how you find your answer.</i> |
| c. Last year Jane's family saw 4 times as many elk as they saw this year. How many did they see? <i>Show how you find your answer.</i> | d. Jane's family loves to go fishing at Yellowstone. They have caught a total of 27 fish in the past 3 years. If they caught the same amount each year, how many fish did they catch each year? <i>Show how you find your answer.</i> |

Read problems 2, 3, 4, and 5 on this and the next two pages. Select three problems to answer. Answer ALL of the parts of the three problems you select to answer. Cross out the one problem that you do not choose to answer.

- ② Valley School challenged Whitman School to a reading contest. The 4th grade students at **Valley** recorded the number of books they read each week. The first week they read 25 books. The second week they read 3 more books than the first week. The third week they read 3 more books than the second week. This pattern continued for 8 weeks.

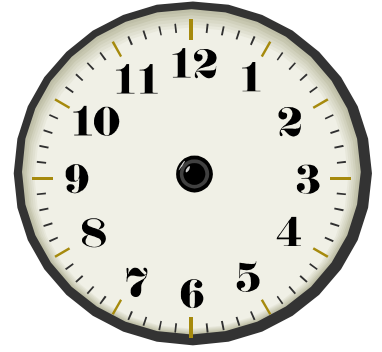
Whitman 4th grade students read 30 books the first week. The second week they read 2 more books than the first week. This pattern continued for Whitman for 8 weeks.

- a. Fill in the chart below for each school.

Week	1	2						
Valley	25							
Whitman	30							

- b. Each school will be rewarded with a popcorn party when it has read 40 books in one week. Which week will each school earn its popcorn party? *Show or explain how you find your answer.*
- c. Which school read the most books at the end of 4 weeks? *Show or explain how you find your answer.*
- d. Which school read the most books at the end of 8 weeks? *Show or explain how you find your answer.*

- a. Which boy arrives at the zoo first? *Show or explain how you find your answer.*



- 4** The school had a food drive to collect cans of food for the community food bank.

- | | Cans of Food Collected | | | | |
|--------------------|------------------------|------|------|------|--------|
| | Sept. | Oct. | Nov. | Dec. | TOTALS |
| Mr. Green's class | 15 | 15 | 22 | 43 | |
| Mrs. Smith's class | 4 | 7 | 18 | 15 | |
| Ms. White's class | 16 | 8 | 30 | 37 | |
| TOTALS | | | | | |

- c. Make a bar graph to show the total number of cans collected each month.

[illegible]

- 5 Holly and a friend are spending 6 days at a summer camp. They can take classes in arts and crafts. Holly plans to make three projects during her six days at camp. Holly must pay for the materials to be used in each project. She has \$4.50 to spend on these projects.

Projects	Cost
Apron	\$1.75
Beaded necklace.....	\$1.00
Candle.....	\$1.55
Ceramic candy dish.....	\$1.85
Flower arrangement	\$2.15
Key chain	\$1.50
Leather coin purse	\$2.25
Potholder.....	\$1.15

Holly wrote down three possible choice combinations:

Choice 1

Leather coin purse
Beaded necklace
Flower arrangement

Choice 2

Ceramic candy dish
Candle
Key chain

Choice 3

Potholder
Apron
Beaded necklace

- a. What is the **total** cost of **each** choice? *Show or explain how you find your answer.*
- b. Which choice of projects will she have enough money to pay for? *Show or explain how you find your answer.*
- c. Holly's friend had \$4.75 to spend. What 3 projects can she make with \$4.75? *Show or explain how you find your answer.*

2000-01 Fourth-Grade Direct Math Assessment

Name _____

Welcome to the 2001 Idaho Direct Mathematics Assessment. Your teacher will read the entire test to you before you begin. Do not use a calculator on this assessment.

1. According to an Internet website, the populations of the following Idaho towns are:
Paul 901, Preston 3710, Priest River 1560, and Salmon 2941.

a. How many people live in these four towns altogether? *Show or explain how you found your answer.*

b. How many more people live in the town of Preston than live in the town of Priest River? *Show or explain how you found your answer.*

c. Stanley, Idaho has a population of 71 people. If the population of Stanley were to triple this year, how many people will the town have? *Show or explain how you found your answer.*

d. A group of 56 people decided to visit Preston, Paul, Stanley, Priest River, and Salmon. They will ride in vans on this trip. Only 8 people will fit in each van. How many vans will be needed to make the trip? *Show or explain how you found your answer.*

Read problems 2, 3, 4, and 5 on this and the next two pages. Select three problems to answer. Answer ALL of the parts of the three problems you select to answer. Cross out the one problem that you do not choose to answer.

- 2 . You went to a movie theater with Sarah and Bob. The price of admission was \$6.50 each. At the snack bar were the following signs:



Popcorn



Pop



Candy Bars

Small	\$1.00	\$.90	\$2.00
Medium	\$ 1.50	\$1.10	
Large	\$2.00	1.29	

- a. Sarah bought one candy bar and a large pop. What was the total amount of money she spent at the snack bar? *Show or explain how you found your answer.*
- b. Bob bought a candy bar, a small box of popcorn and a large pap. Who spent more money at the snack bar, Sarah or Bob? *Show or explain how you found your answer.*
- c. Sarah took \$10.00 to the movie. How much change should she have left after paying for the movie, one large pop, and a candy bar? *Show how you found your answer.*

- a. Fill in the bar graph below to show the number of minutes Mandy spend doing her homework each day last week.

TIME SPENT ON HOMEWORK

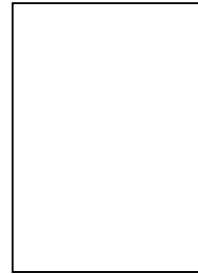
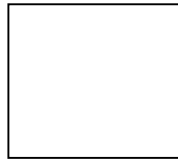
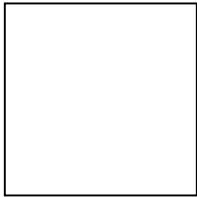
MONDAY	TUESDAY	WEDNESDAY	THURSDAY

- d. How many **hours** did Mandy spend on homework last week? *Show how you found your answer.*

4. Sally was trying to beat the school record for doing the most pull-ups. She needed to beat Tommy's record of 31 pull-ups. Sally started practicing at home every day. Monday she could do 4 pull-ups. On Tuesday, she could do 8 pull-ups. On Wednesday, she could do 12 pull-ups.

- a. If this pattern continues, how many pull-ups should Sally be able to do on Saturday? Show how you found your answer by drawing a picture, making a chart, or writing an explanation.
- b. If this pattern continues, on what day would Sally beat Tommy's record? *Show or explain how you found your answer.*

5 . Each of these figures is either a square or a rectangle.



- a. Draw a line that will divide one of the rectangles into two squares. **Label the line A.**
- b. Draw a line that will divide the other rectangle into two triangles. **Label this line B.**
- c. Draw a circle in one of the squares. **Label the circle C.**
- d. Divide the other square into four triangles.

1999-2000 Idaho Fourth-Grade Direct Math Assessment

Name _____

Welcome to the 2000 Idaho Direct Mathematics Assessment. Your teacher will read the entire test to you before you begin. Do not use a calculator on this assessment.

- 1 . Andrea went to the grocery store for her mother. Her mother gave her \$6.00 to spend. She bought a dozen eggs for \$0.96, a gallon of milk for \$2.40, and a pound of tomatoes for \$1.96.
- a. How much money did she spend altogether? *Show how you found your answer.*
- b. Andrea gave the clerk \$6.00. How much change will she get back? *Show how you found your answer.*
- c. When Andrea got home with the dozen eggs she separated them into three equal groups. How many eggs were in each group? *Show how you found your answer.*
- d. If Andrea wanted to buy three gallons of milk, how much money would she need to spend? *Show how you found your answer.*

Read problems 2, 3, 4, and 5 on this and the next two pages. Select three problems to answer. Answer ALL of the parts of the three problems you select to answer. Cross out the one problem that you do not choose to answer.

2 . The school band is selling candy bars to raise money for new uniforms. Sam is in the band and has 195 candy bars to sell. He sells 20 candy bars on the first day and 25 candy bars on the second day. On the third day he sells 5 more candy bars than he sold on the second day. On the fourth day he sells 5 more candy bars than he sold on the third day. This pattern continues until all of the candy bars are sold.

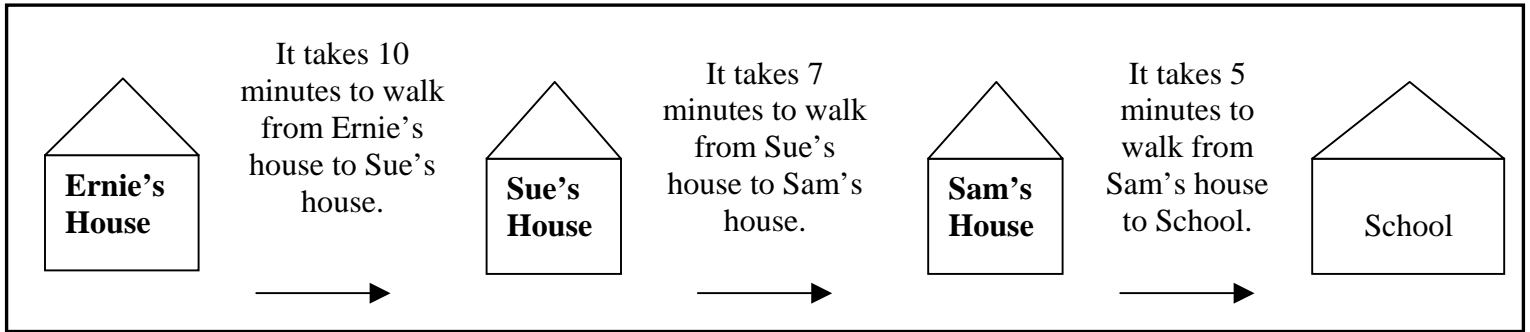
- a. Fill in the chart below. You should include the day, the number of candy bars sold that day, and the number of candy bars that Sam would have left to sell at the end of each day. Part of the chart is filled in for you.

Day	1	2					
Number of Candy Bars Sold	20	25					
Number of Candy Bars Remaining	175						

- b. What is the total number of candy bars sold on the first, second, third, and fourth days combined? *Show how you found your answer.*

- c. How many days did it take Sam to sell all 195 candy bars? *Explain how you found your answer.*

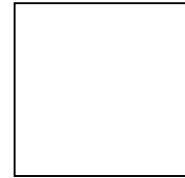
3 . Ernie, Sue, and Sam walk to school.



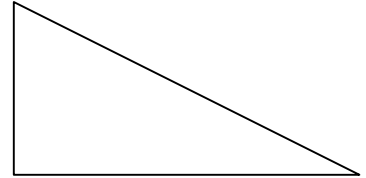
- a. **Ernie** leaves his house, walks past Sue's house, walks past Sam's house, and then walks to the school. How long does it take Ernie to walk to school? *Show how you found your answer.*
- b. If **Ernie** leaves his house at 7:50 a.m., what time will he reach school? *Show or explain how you found your answer.*
- c. School starts at 8:30 a.m., when will **Sue** need to leave home to have 5 minutes to play before school starts? *Show or explain how you found your answer.*

4 .

- a. Draw one straight line to make **two rectangles** out of this square.
- b. Is there more than one way to correctly draw the line in part a?
If your answer is yes, draw at least one example below.



- c. Draw one straight line to make **two triangles** out of this triangle.
- d. Is there more than one way to correctly draw the line in part c?
If your answer is yes, draw at least one example below.



5 . A kitten climbed the stairs to the second floor of a house. First it went up 8 steps and got scared so it came down 5 steps. Feeling very brave, the kitten went up 6 steps, back down 2, and then up 3 steps to the very top of the stairs.

- a. In the space below draw a picture, graph, or diagram that shows the path the kitten took to the second floor.

- b. How many steps are there in this set of stairs? *Explain how you found your answer.*

Idaho DMA Practice Assessment

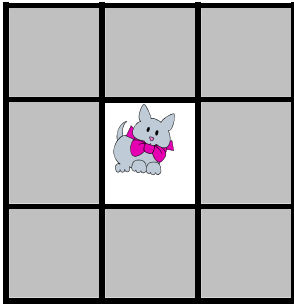
Name _____

Welcome to the Idaho Direct Mathematics Assessment. Your teacher will read the entire test to you before you begin. You may NOT use a calculator on this assessment.

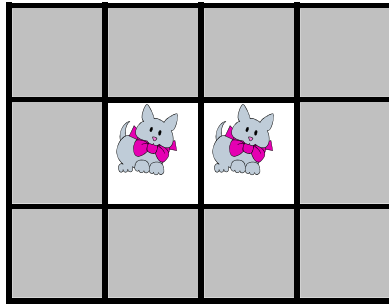
1. Hilltop Elementary School is having a bake sale to raise money for computers. Cookies and cupcakes will be sold.
- a. Amy will make three batches of cookies to sell at the bake sale. Each batch of cookies needs to have two cups of flour. How many cups of flour will Amy need altogether for her cookies? *Show how you found your answer.*
- b. John buys seven cupcakes at the bake sale. Cupcakes cost \$.25 each. How much money will John spend on cupcakes? *Show how you found your answer.*
- c. There were 224 cupcakes and twice as many cookies for bake sale. How many cookies did the students have? *Show how you found your answer.*
- d. The students at Hillside Elementary raised \$4,200 for computers. Each computer costs \$1,500. How many computers would the school be able to buy with the money that they raised? *Show how you found your answer.*

Read the remaining four numbered problems (2, 3, 4, and 5) and select three you wish to answer. Answer ALL of the parts of the three problems you choose to answer. Cross out the one problem you do not choose to answer.

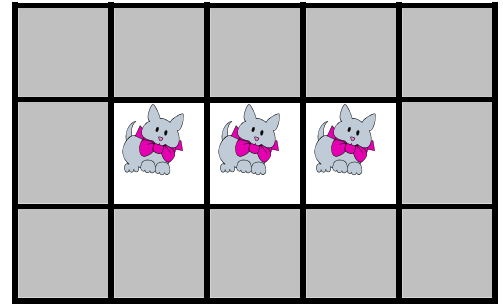
- 2 . Look at the following pattern of pictures. Count the number of cats and gray squares in each part of the pattern.



Number of cats	
Number of gray squares	



Number of cats	
Number of gray squares	



Number of cats	
Number of gray squares	

- How many squares are needed to go around 4 cats? *Explain or show how you found your answer.*
- How many squares are needed to go around 6 cats. *Explain or show how you found your answer.*
- How many squares are needed to go around 10 cats? *Explain or show how you found your answer.*

3.

- a. Jennifer gets an allowance of \$12.00 a week. February has 4 weeks. How much money does Jennifer get in February? *Show how you found your answer.*

- b. March has 5 weeks. Jennifer got her allowance for the first 2 weeks, but only half of her allowance the last 3 weeks because she didn't get her work done. How much money did she get in March? *Show how you found your answer.*

- c. Did Jennifer get more money in March or February? *Explain how you found your answer?*

4. Three fourth grade classes are planning a field trip to the Idaho History Museum. Mr. Blue's class has 26 students, Mrs. Gold's class has 22 students, and Mr. White's class has 24 students.

- a. How many fourth grade students are there in all? *Show how you found your answer.*

- b. If you combine Mr. Blue's and Mr. White's classes, how many more students would be in this combined class than in Mrs. Gold's class? *Show or explain how you found your answer.*

- 5 . Mr. Brown’s students have earned a pizza party. He asks his students to name their favorite kind of pizza. Each student can name only one kind.

Favorite Kinds of Pizza

Canadian Bacon	
Cheese	
Pepperoni	

- a. Mr. Brown decides to graph the results of his survey. Complete the graph for Mr. Brown.

Favorite Kinds of Pizza

- b. What is the total number of students in Mr. Brown’s class? Explain or show how you found your answer?
- c. How many more students like Canadian bacon pizza than like cheese pizza? Explain or show how you found your answer?
- d. What kind of pizza was 2 times more popular as cheese pizza? Explain or show how you found your answer?

Number Concepts & Computation

d. At the end of the day, the zookeeper announced that he was going to give the birds away to 5 students. How many birds would each of the 5 students get? Show or explain how you found your answer.

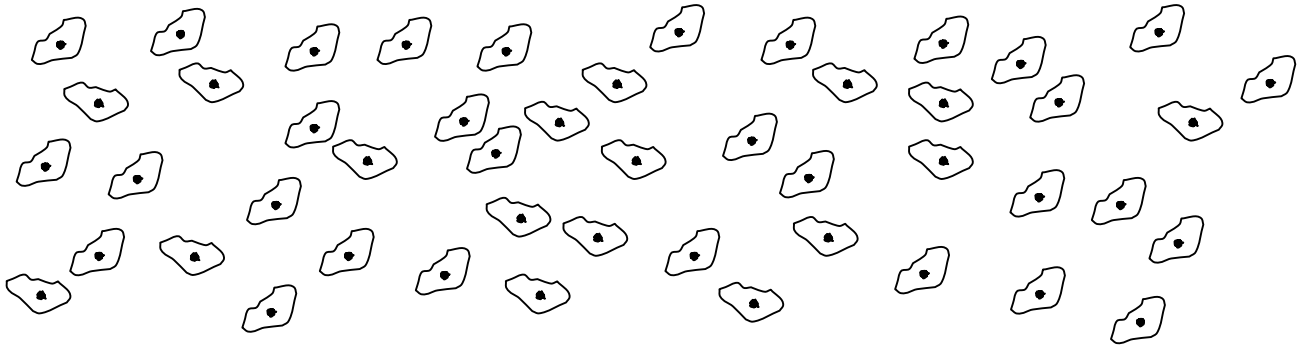
Fourth Grade Idaho Direct Mathematics Assessment

#4-002 Fourth-Grade Practice Prompt

Number Concepts & Computation

This is an **ogg**: 

- a. A package of **oggs** holds six of them. How many packages are needed to hold all of the oggs pictured below? Show or explain how you found your answer.



- b. If you have 66 **oggs**, how many packages will you need to hold all your **oggs**? Show or explain how you found your answer.
- c. If you have 53 **oggs**, how many packages will you need to hold all of your **oggs**? Show or explain how you found your answer.

#4-003 Fourth-Grade Practice Prompt Number Concepts & Computation

a. How many ice cream treats did the workers make last week?

b. How many more hot fudge sundaes did the workers make than strawberry sundaes?

c. The workers used 99 bananas to make all the ice cream treats. Next week the manager is having a big sale on sundaes and needs to order three times as many bananas. How many bananas does the manager need to order?

d. The 99 bananas came in three boxes. How many bananas were in each box?

Time and Money

A blank clock face with numbers 1 through 12 arranged in a circle around a central purple dot. The numbers are in a simple black font, and the clock face is a thin black circle.

- a. How many hours and minutes does Tina spend on school work after school? Show how you got your answer.
- b. If Tina wanted to watch a special on TV at 5:00 p.m. would she have time to finish her homework before the TV special? Show how you know if she does or does not have time?
- c. Tina wants to wait to study her spelling in the morning. It takes her 30 minutes to get ready for school, including eating breakfast, and 10 minutes to walk to school. What time does she need to get up to have time to practice her spelling and still get to school on time? Show how you found your answer.

Time and Money

- What time does Danny need to leave the house?
- How long does it take Danny to get ready for school before he leaves each morning?
- What times does he need to set his alarm to be on time for Honor Choir?
- Honor Choir started 15 minutes earlier one day. What time did Danny have to get up that morning?

Fourth Grade Idaho Direct Mathematics Assessment

#4-006 Fourth-Grade Practice Prompt

Patterns and Relationships

Kyle bought new school clothes. He bought three tops and three bottoms. The tops he bought were a white T-shirt, a blue T-shirt, and a red sweatshirt. The bottoms he bought were white shorts, blue jeans, and blue sweatpants. Show how many different combinations of tops and bottoms Kyle can wear to school.

Fourth Grade Idaho Direct Mathematics Assessment

#4-007 Fourth-Grade Practice Prompt

Graphs, Data Collection, and Analysis

The White Elementary School had a boat race to see which boat could stay afloat the longest. Mary's boat floated for 11 minutes, Larry's boat for 13 minutes, Jerry's boat had trouble and only floated for 4 minutes and Beth's boat stayed afloat for a total of 9 minutes. **SHOW ALL YOUR WORK FOR "a THROUGH d."**

a. Draw a chart or graph to show how many minutes each boat floated in the water.

b. Which boat stayed afloat the longest?

c. Jerry's boat sank how many minutes before Beth's boat?

d. If Larry's boat had floated twice as long, how many minutes would it have floated?

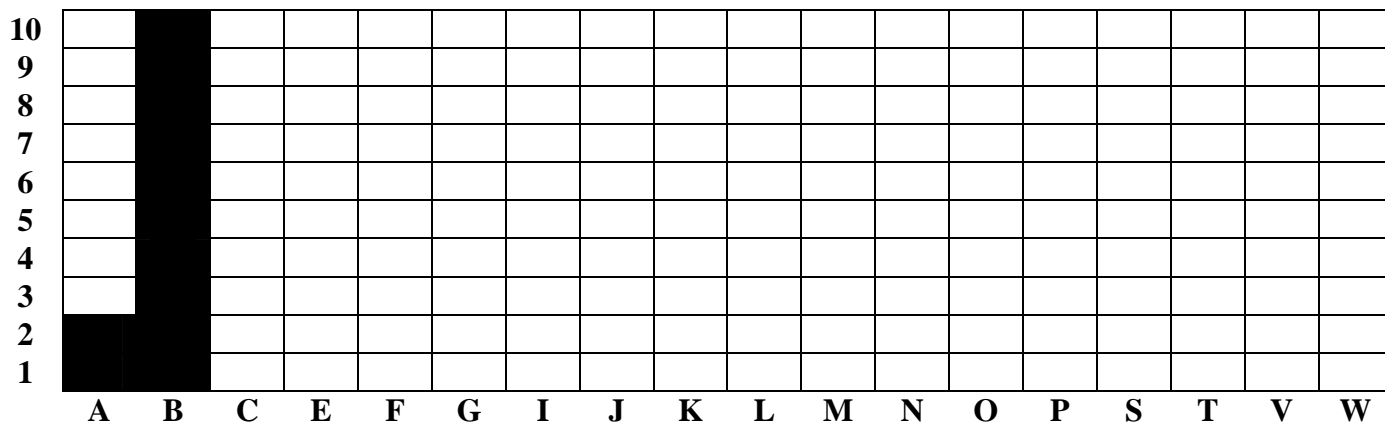
Fourth Grade Idaho Direct Mathematics Assessment

#4-008 Fourth-Grade Practice Prompt

Graphs, Data Collection, and Analysis

There are 44 counties in the State of Idaho. Ten counties begin with the letter “B”; 7 with the letter “C”; 4 with the letter “L”; 2 with the letter “A”, “F”, “G”, “J”, “M”, “O”, “P”, and “T”; and one each with “E”, “I”, “K”, “N”, “S”, “V”, and “W”.

- a. Complete the bar graph to show the amount of counties for each letter:



- b. How many more “L” counties are there than “M” counties”? Explain or show how you found your answer.

- c. There are 10 “B” counties. Which other letters would add up to the same number as the “B” counties? Explain or show how you found your answer.

Fourth Grade Sample Lesson Plan: Problem Solving and the Direct Math Assessment

Focus: Introduction of Problem Solving and the DMA in September.

Standards: 298.01, 298.02, 298.03, and 298.04

Objectives: The student will:

- 1) know how to use problem solving.
- 2) read and begin to use the DMA scoring standard (student version)
- 3) develop a list of problem solving strategies.

Materials: Copies of blank DMA for each student, transparency of blank DMA, student scoring standard, transparency of advanced main rangefinder from Toolkit, poster paper (with title: Problem Solving Strategies)

Explanation of Instructional Activity:

- 1) Use instructional strategy "Three to a Customer". Pose question, "What is Problem solving?" Ask students to write 3 things (three to a customer) that come to mind on a small piece of paper.
- 2) Elicit responses from students using a method that allows each to share from their notes. Teacher records thoughts on poster paper.
- 3) Share a possible definition of problem solving. "Problem solving is what you do when you don't know what to do."
- 4) Give examples of simple problems and more complex problems to illustrate step #3. Emphasize to students that real problem solving can lead to some frustration and requires deep thinking.

Direct Instruction: "My goals for you this year are that you will be able to...":

- ♦ Know and use many different strategies to solve math problems.
- ♦ Explain and show your thinking and reasoning.
- ♦ Successfully solve problems.
- ♦ Know and understand the scoring standard.

Distribute a copy of a blank DMA to each student. Form cooperative groups of 2 -4 students and assign one problem from the DMA to each cooperative group to solve. *Note: To insure success with cooperative groups, students need prior experience and teacher guidance, working together in a cooperative setting. Cooperative groups need assigned roles and structure.*

Ask a group to record at the front of the room (on transparency for all to see) their solution to the problem. Discuss strategies used and other possible strategies that could be used to solve the problem. Record strategies on teacher prepared poster, which will remain in the room all year and the strategy list will grow as new strategies are used.

Continue with step above for each group to share. (This may take several days.)

Follow-up:

- ♦ Read the scoring standard and understand the goal is to be proficient or advanced.
- ♦ Show students an example of an "advanced" paper and analyze why it is advanced together.
- ♦ Continue with this process with practice prompts until students are able to self-assess.

Fourth Grade Sample Lesson Plan: Geometry!

Focus: Geometry concepts.

Standards: 301.01.a, 301.01.b, 301.01.c, and 301.01.e

Objectives: The student will be able to do the following:

1. Identify geometric shapes;
2. Construct geometric shapes with geoboards and graph paper;
3. Begin to understand perimeter and area.

Materials: Geoboards, rubber bands, graph paper, and pencils.

Explanation of Instructional Activity:

1. Review expectations of proper use of rubber bands and geoboards.
2. Generate discussion of what geometry is and how it is used in real world settings.
3. Cooperative groups may be used if there are not enough geoboards for each student.
4. Explore the characteristics of a square, a rectangle, and a triangle by using geoboards so each student has an opportunity to make each shape.
5. Discuss length, width, perimeter, and area to make sure everyone has a common understanding of these terms.
6. Have students demonstrate their knowledge of these terms (in #5) in a math journal.
7. Students will complete the following activities using their geoboards:
 - a. Construct a square
 - b. Draw a square on graph paper that is the same size as on the geoboard.
 - c. Review characteristics of a square.
 - d. Identify area and perimeter of a square.
 - e. Do same procedure for rectangle and triangle.
8. Students will explore making various sizes of squares, rectangles, and triangles. Then the teacher will give directed sizes for students to complete.
9. Assessment will be by teacher observation and checklist.

Feel free to modify, add to, or change this to make it work for your students!